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A01G 13/10

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A1E EAGX EG9

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GB 2104366 A **GB 0991368 A**

(58) Field of Search
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INT CL⁵ **A01G 13/10**
ONLINE DATABASES: WPI

(54) Tree and shrub protector

(57) The protector comprises a tube P manufactured and constructed of at least two spirally wound layers of cardboard made from virgin or recycled fibres, at least one of said layers being treated to provide wet strength and water resistance, said layers being laminated together by means of adhesive. The protector may be chamfered at one or both ends in order to reduce chafing on a tree or shrub being protected.

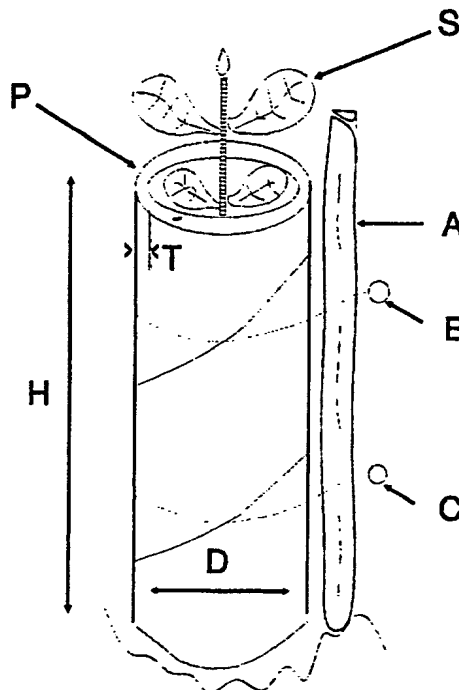


FIGURE 1

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$\frac{1}{3}$

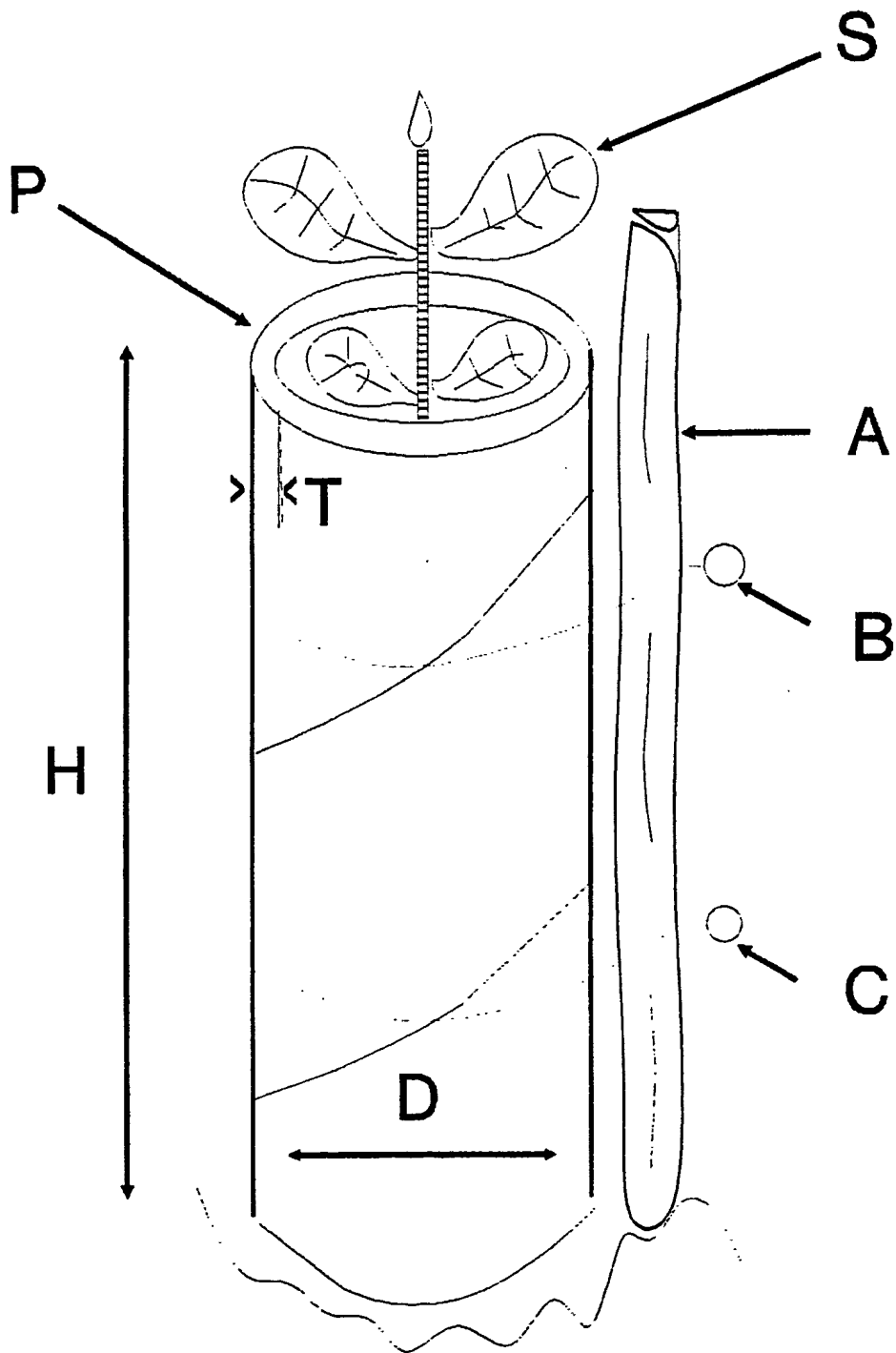


FIGURE 1

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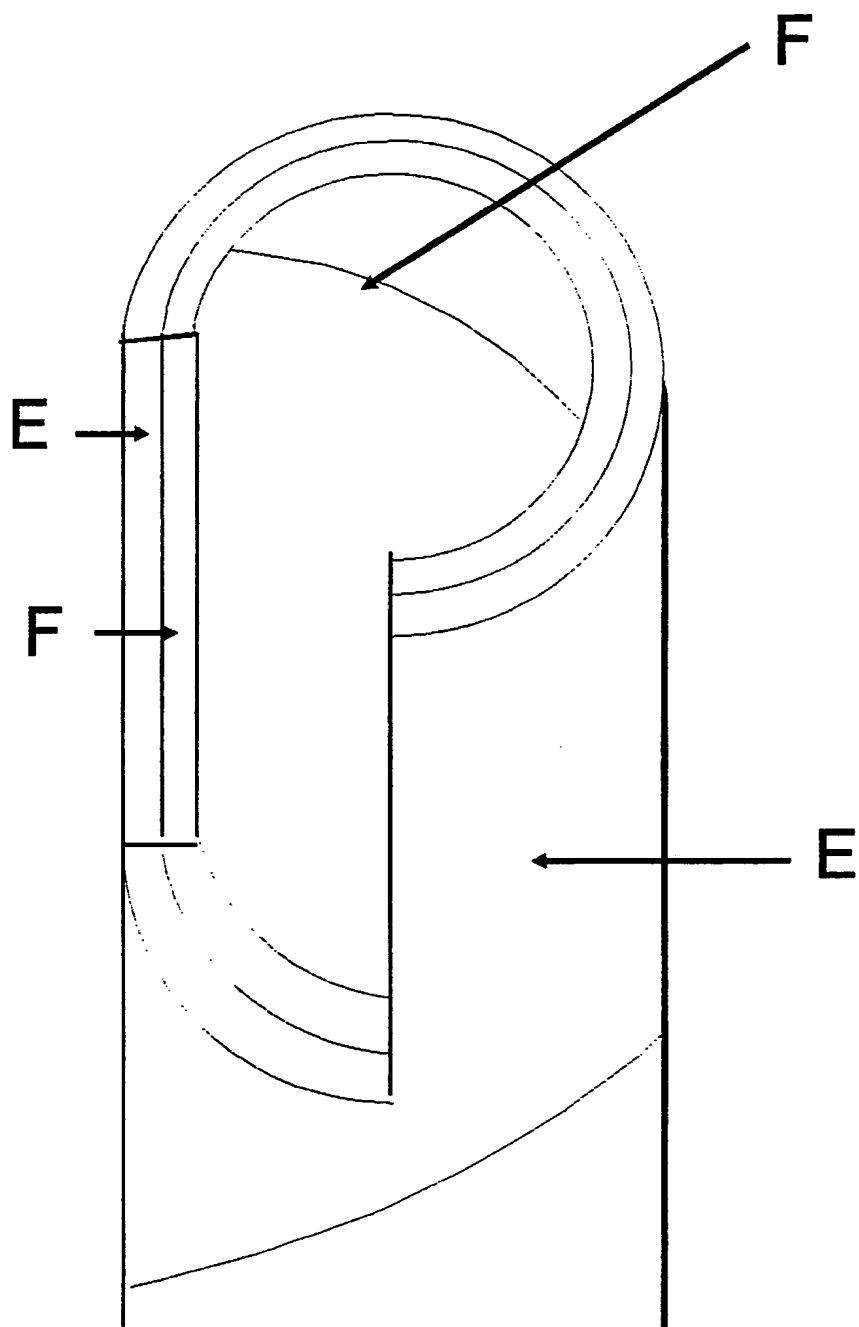


FIGURE 2

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G

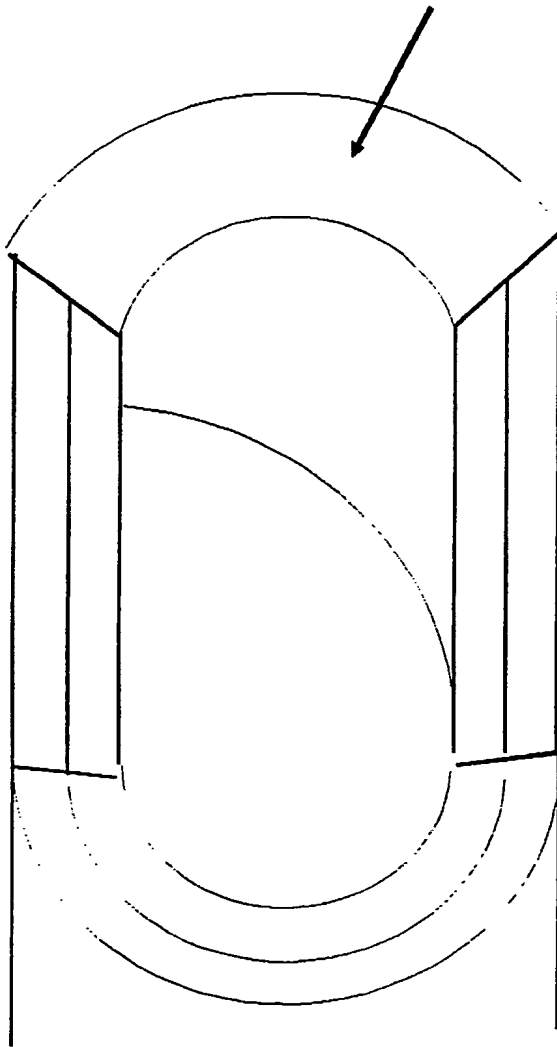


FIGURE 3

TREE AND SHRUB PROTECTOR

05 This invention relates to tree and shrub protectors, and more particularly to such protectors in tube form made from either virgin or recycled papermaking fibres.

10 The problems of protecting young trees and shrubs are well known. Without protection the trees and shrubs can be eaten by animals such as deer and rabbits. There are various types of tubular tree and shrub protectors currently available which are made of extruded plastics material, for example polypropylene, and these tubes have the advantage of being lightweight and very durable. However, these tubes are not made from naturally occurring raw materials and in the field their use is very obvious, 15 mainly by their strong visual impact, and also any damaged units tend to blow away thereby creating litter.

20 The present invention is based upon natural fibre. In the recycled fibre version, the fibres started as trees, which were then pulped up and used in the manufacture of paper or board. After use, these fibres are recycled to produce the laminating baseboard, which is then used for making spiral wound tubes. On a domestic scale these tubes 25 are typically found in the centres of toilet rolls, kitchen rolls and metal foil rolls. On an industrial scale the tubes have a much larger construction and greater

strength. They are used as cores for the centres of large
reels of paper or cardboard.

05

The present invention appropriately completes the life
cycle by protecting the next generation of timber that
will be used for the new life cycle. As it is a natural
fibre, it will rot down and become humus, blending into
10 the soil as a natural product.

10

According to the present invention there is provided a
tree and shrub protector tube comprising two or more
spirally wound layers of cardboard made from recycled or
15 virgin fibres, at least one of said layers being treated
to provide wet strength and water resistance, said layers
being laminated together by means of adhesive.

15

The thickness of the walls of the tube may be varied by
20 inceasing or decreasing the number of layers of spirally
wound cardboard at the time of manufacture.

20

One or both ends of the tube may be chamfered or radiussed
in order to reduce chafing of the young tress and shrubs
25 when the trees and shrubs are taller than the tube.

25

In order that the invention may be more readily understood

embodiments thereof will now be described, by way of example, reference being made to the accompanying drawings wherein:

05

Figure 1 is a perspective view of a cardboard tree and shrub protector in accordance with the invention, the protector being shown in operative position in the field relative to a young tree to be protected;

10

Figure 2 shows a detail of the cardboard tree and shrub protector; and

Figure 3 shows a detail of a modified tree and shrub protector tube where increased chafing resistance may be required.

15

Referring to the drawings, Figure 1 shows a tree protector P of tubular form having a height H, an internal diameter D and a wall thickness T, these dimensions, as will be appreciated, being variable depending on the application.

20

The protector is shown in operative position relative to a sapling S.

25

Height H depends on the nature of the protection, whether against rabbits or deer for example. Internal diameter D depends on the type of tree or shrub being protected - trees like beech or ash may use 3-inch to 4-inch diameter, whereas shrubs like laurel or holly may use up to 12-inch

diameter. The other factor governing diameter D is the required light levels at the base of the tube; the greater the dimension of diameter D, the more light can get to the base of the tube and hence to the tree or shrub being protected. The light factor is a function of height H and diameter D. Thickness T depends upon how light or strong the tube needs to be. A thicker tube will be very strong, but it will be heavier for carrying. The ideal situation requires a tube as light in weight as possible, but strong enough to meet the application requirements.

A stake indicated by reference A is typically of the split chestnut type. An example of the type of stake is that used for wooden snow fencing beside roads where the stakes are wired together. A stake of this type will be adequate for this application, but it will be appreciated that any suitable stake may be used. A fixing tie B and additional fixing tie C can be of any suitable material which will survive the life requirement, typically five years, of this application. Two examples are:

- (a) wire twist loops like those used for the closure of bags of potatoes, the advantage of these being that they would eventually rust away thereby obviating the need for removal to prevent permanent litter in the countryside;
- (b) long plastics material ties like those used in the

electrical industry. These would need to be removed to prevent subsequent cutting into the tree or shrub when
05 sufficient growth development has been attained.

Figure 2 shows a cutaway of the cardboard tree and shrub protector tube. As will be seen, the tube comprises layers E and F which are specially treated to maintain strength
10 when wet. The base material is typically called 'Fish Block Liner' due to its main application as a packaging material for frozen/wet fish. In colour, the base material is normally greyish/brown, but white and other colours are also available. The outer surface can be printed with a
15 single colour. The print can be either text or graphics or a combination of the two. The layers shown as E and F in Figure 2 are spirally wound and laminated together using water resistant adhesives, for example polyvinyl alcohol, in order that the integrity of the tubes can be maintained
20 when wet. The water resistant nature of the inner surface treatment ensures that water runs off the surface to benefit the tree or shrub and to prevent mould growth.

Figure 3 shows a detail of a modified cardboard tree and shrub protector tube. A top edge, indicated at G, of the
25 protector is manufactured with a chamfer such that a sapling would only come into contact with a low contact

angle. The bottom of the tube protector may have an
opposite chamfer, or it may be square cut as with the tube
protector of Figure 1. The remainder of the construction
is as previously described.

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20

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CLAIMS:

05 1. A tree and shrub protector comprising two or more
spirally wound layers of cardboard made from recycled or
virgin fibres, at least one of said layers being treated
to provide wet strength and water resistance, said layers
being laminated together by means of adhesive.

10

2. A protector according to Claim 1, wherein the
thickness of the walls of the protector is varied by
increasing or decreasing the number of layers of spirally
wound cardboard.

15

3. A protector as claimed in Claim 1 or Claim 2,
wherein a base material of the layers of the protector is
'Fish Block Liner'.

20

4. A protector as claimed in any of Claims 1 to 3,
wherein the adhesive is a water resistant adhesive.

5. A protector as claimed in any of Claims 1 to 4,
wherein the water resistant adhesive is polyvinyl alcohol.

25

6. A protector as claimed in any of the preceding
Claims, wherein one or both ends of the protector has a

chamfer in order to reduce chafing on a tree or shrub being protected.

05

7. A protector as claimed in any of the preceding Claims, wherein the outer surface of the protector is printed.

10

8. A tree and shrub protector substantially as herein described with reference to and as illustrated in Figures 1 and 2 of the accompanying drawings.

15

9. A tree and shrub protector substantially as herein described with reference to and as illustrated in Figures 1 and 2 as modified by Figure 3 of the accompanying drawings.

20

25

**Examiner's report to the Comptroller under Section 17
(The Search report)**

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GB 9413347.7

Relevant Technical Fields

(i) UK Cl (Ed.M) A1E (EAGX); B5N; F2P

(ii) Int Cl (Ed.5) A01G 13/10

Databases (see below)

(i) UK Patent Office collections of GB, EP, WO and US patent specifications.

(ii) ONLINE DATABASES: WPI

Search Examiner
J M WORVELL

Date of completion of Search
2 AUGUST 1994

Documents considered relevant
following a search in respect of
Claims :
1-9

Categories of documents

- | | |
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|--|---|

Category	Identity of document and relevant passages	Relevant to claim(s)
Y	GB 2104366 A (McMILLAN)	1, 2
Y	GB 0991368 (M M M)	1, 2

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